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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/601,078	07/20/2000	Masafumi Koide	Q60201	5578

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EXAMINER

MAKI, STEVEN D

ART UNIT

PAPER NUMBER

1733

DATE MAILED: 12/18/2002

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicant(s)

09/601,078

Applicant(s)

KOIDE, MASAFUMI

Examiner

Steven D. Maki

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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- 1) The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

- 2) Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1-10, the number of claimed reinforcing layers is unclear. On the last line of each of claims 1, 2 and 7, it is suggested to insert --of the plurality of reinforcing layers-- after "an outermost reinforcing layer".

- 3) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

- 4) **Claims 1 and 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moseley et al (US 5669993) in view of either Collette et al or Japan '805 (JP 62-286805), and in view of Europe '849 (EP 605849) and Rubber Technology and Manufacture by Blow, and optionally further in view of Japan '510 (JP 9-323510) and/or PCT (WO 96/01190).**

Moseley et al substantially discloses the claimed invention in that it discloses use of a twisted block having narrow grooves therein to reduce RAST (residual aligning torque) of the tire.

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Europe '849 is cited to explain that the belt causes RSAT of a tire. Blow adds to the disclosure of Europe '849 by explaining that the reinforcing members in each layer of a belt are parallel cords.

Collette et al and the optional Japan '510 relate to the embodiment shown in figures 1-11 of applicant's disclosure.

Japan '805 and the optional PCT relate to the embodiment shown in figures 12-17 of applicant's disclosure).

Moseley et al discloses a tire having a tread comprising blocks wherein each block is **twisted** so that when the block is compressed it generates a net torque to affect (i.e. reduce) a RSAT (residual self aligning torque) of the tire. From figures 12A, 12B and figure 14 and the description thereof, it can be seen that the narrow grooves in the block are twisted when the block is twisted. In other words, Moseley et al suggests a twisted block having twisted narrow grooves therein. Moseley et al does not specifically recite that the "illustrated narrow grooves" in the block are "sipes".

As to claim 1, it would have been obvious to one of ordinary skill in the art to include a sipe in the block of Moseley et al such that the sipe in the block is twisted along with the block since (a) Moseley et al shows that the block may contain **narrow grooves** (figure 14) and suggests twisting said narrow groove containing block to reduce RSAT and (b) it is well known in the tire tread art to provide **narrow grooves** in the form of sipes in order to improve traction as shown by Collette et al or Japan '805 and optionally (c) twisted sipes are known per se as evidenced by Japan '510 and/or PCT. For example, Collette et al teaches at col. 4 lines 37-40 that the sipes (cross slits

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which close up in the footprint due to their narrow width) improve traction and braking properties. The optional Japan '510 adds to the combination of Moseley and Collette et al by (1) showing that a both end opening sipe can be formed in a twisted configuration and (2) teaching that the twisted both end opening sipe prevents a crack from being produced in the sipe bottom. The optional PCT adds to the combination of Moseley and Japan '805 by (1) showing that a closed sipe (incision) can be twisted (formed in a twisted configuration) and (2) specifically teaching that a closed sipe improves adhesion (traction).

The limitation of "the pneumatic tire having a plurality of reinforcing layers in each of which cords, which are inclined at a predetermined angle with respect to a tire circumferential direction, are provided parallel to each other wherein the sipe is twisted such that a self alignment torque is generated by the block so as to reduce a self alignment torque generated due to the cords provided in parallel to each other in an outermost layer reinforcing layer of the plurality of reinforcing layers" would have been obvious in view of (a) Moseley et al's teaching to form the block in a twisted configuration to reduce RSAT (residual aligning torque) of the tire, (b) Europe '849's explanation (e.g. at page 2 lines 24-25) that the belt having reinforcing members causes RSAT of a tire and (c) Blow's explanation that the reinforcing members in each layer of a belt are parallel cords.

The limitation of the sipe being twisted around a first axis and a second axis so as to satisfy $P1 = 20-80\% W$ and $P2 = 20-60\% F$ would have been obvious in view of

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(a) Moseley et al's teaching to twist and optionally (b) Japan '510's teaching to twist the sipe about a "middle central region" of the block such that the length on the block surface is made nearly equal to the length of the sipe at the sipe bottom.

As to claim 7 (closed twisted sipe), note combination of Moseley et al and Japan '805. The limitation of the sipe being neither connected with a main groove nor lug groove would have been obvious since Japan '805 shows not connecting a closed sipe to a groove to improve resistance to wear.

As to claims 8-10, the limitations therein would have been obvious in view of Moseley et al's disclosure to twist a block so that when compressed the block generates a torque which counters a residual self aligning torque (RSAT) of the tire.

5) Claims 2-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moseley et al (US 5669993) in view of either Collette et al or Japan '805 (JP 62-286805), and in view of Europe '849 (EP 605849) and Rubber Technology and Manufacture by Blow, and optionally further in view of Japan '510 (JP 9-323510) and/or PCT (WO 96/01190), as applied above and further in view of Lagnier (US 5,783,002).

As to claims 2-6, it would have been obvious to provide the sipe so as to be wave shaped along its length when viewing a surface parallel to the block surface and wave shaped along its depth when viewing a cross section of the block to improve adhesion of the tire to the road since Lagnier (figure 1) suggest configuring sipes such that they are wavy along the length of the sipe (incision) and along the depth of the sipe (incision) to improve adhesion of the tire to the road. PCT additionally teaches "twisting" a virtual

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central plane of the sipe (incision) so as to define an angle beta at the sipe bottom.

PCT therefore suggests that using a wavy shape is applicable to using a twisted sipe.

Lagnier teaches that the sipe (incision) having the described wavy shape improves adherence and also improves irregular wear.

Remarks

6) Applicant's arguments with respect to claims 1-10 have been considered but are moot in view of the new ground(s) of rejection.

With respect to the added limitation regarding reducing RSAT, note the use of Moseley et al as a primary reference; it being noted that Moseley et al was cited and applied in the last office action but not discussed by applicant in the response filed 9-26-02.

EP 1072445, which (a) is an English language equivalent to Japan 11240314 (applicant provided an abstract of Japan 11240314 in IDS filed 5-20-02) and (b) has the same inventor as this application, is cited of interest to show twisted sipes.

7) No claim is allowed.

8) Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

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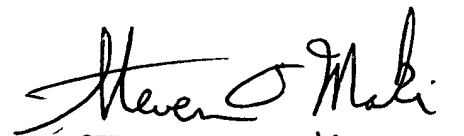
mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven D. Maki whose telephone number is 703-308-2068. The examiner can normally be reached on Mon. - Fri. 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on (703) 308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Steven D. Maki
December 15, 2002


STEVEN D. MAKI 12-15-02
PRIMARY EXAMINER
~~GROUP 1300~~
AU 1733